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ABSTRACT

The purpose of this study was to carry out a longitudinal study of the direct effects of traditional and transformational English grammar on children's writing skills. The investigation was conducted entirely in one large, c educational high school on the outskirts of Auckland, Australi , beginning with the third form and ending with the sixth form. Three-hundred eighty students participated. The results presented show that the effects of such grammar study are negligible in terms of improving writing skills. (RB)

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The Role of Grammar in a Secondary School English Curriculum

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> *Gordon* (1947) 'Grammar not merely has a use in the English classroom, but is indispensable. It is not, and never should be taught as an end in itself. Its value is that it provides part of the technique for good writing.'

Introduction

The traditional faith of English teachers in the direct benefits of English grammar, as represented in the authority quoted above, has been undermined in recent years by many research findings. Indeed, sixty years of empirical studies on the practical value of teaching grammar have failed to demonstrate any consistent measurable effects on students' writing skills. Some teachers have reacted to these studies by ignoring them; others by turning to new linguistic systems; others by changing their justification for grammar; still others by ceasing all formal analytical study of English grammar in the classroom. Certainly the role of grammar is very unclear and in a time of rapid curricular revision, some clarification of the role of grammar study seems long overdue.

There is more than a little justification for those who ignored the research on formal grammar. Many of the experiments designed to assess its utility have been much too brief to produce demonstrable effects. It is unrealistic to expect a course of one or two terms, taken at a stage in a student's development when his language-production habits have stabilized, to have dramatic effects on his writing. Some researchers question whether the participating students had mastered enough grammar for it to transfer. Moreover, many of the reported studies narrowed their focus unduly, and concentrated their attention on those outcomes of a grammar course which could be measured by a limited range of objective tests, or by a single, somewhat unreliable essay. The benefits of short courses require more sensitive measurement than this. A third weakness, revealed by a close study of the experiments on English grammar, is that the participating teachers' attitudes to grammar often contaminate the results of the studies, which are usually very limited in scope. The design of a controlled experiment in teaching any course is notoriously difficult, and many of these grammar investigations have been undertaken by students working towards an academic degree.

The project was initiated by I. H. Barham and sponsored by NZCER. The three teachers worked in collaboration with the principal author throughout the period of the experiment, from the initial planning to the final report.

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The single study which seems to rise above most of the criticisms cited above is that undertaken by Harris (1962) in England, and the results certainly give adherents of traditional grammar teaching little cause for optimism. After a period of two years, five classes of high school students who had studied formal grammar performed significantly worse than a matched group of five non-grammar groups on several objective criteria of sentence complexity and the number of errors in their essays. On most variables there were no differences, but once again, the evaluation was confined to a single essay per child. In this experiment the non-grammar groups studied common composition errors, using inductive methods and patterned practice.

There are clearly gaps in the research on the utilitarian effects of grammar teaching, and the sceptic could be excused for retaining an open mind. All that can be said with certainty is that there is no evidence that traditional grammar has any appreciable effects on the improvement of writing skills.

Recently, the appearance of several new linguistic systems has prompted research workers to measure the practical benefits of such grammars in the same way. Claims have been made that transformational and structural grammars, which describe our language more accurately than do the traditional variety, contribute more to a pupil's writing development. One small American study by Bateman and Zidonis (1966), for instance, showed that ninth-grade students who studied transformational-generative (TG) grammar made fewer errors in their writing and wrote more complex sentences than a non-grammar class. Several other American studies suggest similar trends, but most are too short or poorly designed to be conclusive. One widely-quoted experiment, conducted by Mellon (1969), showed that students who practised sentence-combining exercises within a transformational grammar course made significant and substantial gains in their syntactic maturity on several objective criteria, although there were no differences on conventional criteria of writing quality. Thus the question of the utility of transformational grammar is not settled by the research to date, yet many new courses are being published, intended to encourage its use in schools.

The purpose of the present authors was to carry out a study of the direct effects of traditional and transformational English grammar on children's writing skills, and in so doing to avoid the main deficiencies of the previous research on the subject. An experiment was designed in which three carefully matched groups of students studied three different English programmes for a period of three years. Two of the groups studied the Oregon Curriculum, one with, and the other without the transformational grammar (TG) strand. The third group took a conventional English course, using P. R. Smart's textbook series *'Let's Learn English'* as a resource book. This series emphasizes the development of the skills of reading, writing, listening and speaking and provides exercises in traditional grammar concepts.

To minimize effects due to teacher attitudes, each English teacher taught each course, and the design of the study was such that in the course of the project, each class was taught for a year by each of the teachers. The pupils' growth was compared throughout the project on a wide range of language criteria, including essay-writing skills, sentence structure, usage, spelling, reading comprehension, vocabulary, literature and attitudes.

In addition, a general evaluation was made of the Oregon Curriculum and the *'Let's Learn English'* series as a whole. This assessment should be viewed as a separate exercise, as it must be stressed that the authors of the Oregon Curriculum did not specify the improvement of writing skill as a goal of their TG course. Their aim was to give students an accurate understanding of how their language is put together, and a means of talking about it, in the belief that language is a fundamental human activity worthy of study for its own sake. The present article does not include this general evaluation, nor several other studies conducted incidentally.

Design of the Project

The investigation was conducted entirely in one large, co-educational high school, on the outskirts of Auckland city. Within this school, 248 pupils in eight matched classes of average ability were taught, observed and regularly assessed from the beginning of their third-form year, in February 1970, to the latter part of their fifth-form year, in November 1972. A follow-up test was also given in November 1973. The use of only one school might be seen as a limitation, but it was a very large school, with a wide range of abilities and attitudes represented. As the teachers were able to maintain regular communication, a greater standardization of teaching and testing procedures was assured, and greater control was exerted over many featues of the experiment. The obvious weakness that the attitudes and skills of the three participating English teachers might have an undue influence on the results was circumvented somewhat by using three teachers of diverse background and personality, and by ensuring that, as far as circumstances permitted, each course was taught by each teacher to each class at some stage in the project. Thus the influence of each course could be distinguished from the influence of each teacher, and their relative effects and interactions clarified by statistical procedures.

The Sample

At the outset, one bright and three slow-learning classes were deliberately excluded from the total third-form intake of 380 pupils, thus rendering it more homogeneous, and increasing the chance of identifying systematic differences between groups. Test scores from the PAT reading series (NZCER, 1968) and the distribution of fathers' occupations showed that the experimental sample constituted a representative group of New Zealand urban third-form pupils. Further evidence of the typical nature of the group was seen in the fact that 15 per cent. of the pupils were Polynesian, and the overall pass rate (in four subjects) in the School Certificate Examination in 1972 was 52 per cent., very close to the national norm.

The experimental pupils were classified into eight matched classes of 31 pupils on the basis of their scores on the following tests: *General Ability Test* (Arvidson 1958), the *PAT Reading Comprehension* and *Vocabulary* tests and a locally prepared test of *English language usage*. Additional matching criteria used were ethnic group, sex, contributing school, and subject options.

The English programmes

The three courses studied by the pupils were as follows.

1. *The Transformational Grammar (TG) Course* included the *grammar, rhetoric* and *literature* 'strands' of the Oregon Curriculum (Kitzhaber 1970). This is a new curriculum, based on Jerome Bruner's concepts of 'structure' in knowledge, and 'the spiral curriculum'. It was the authors' expressed purpose to relate all activities to the central core of each strand of the curriculum, thus giving it a clear and consistent unity of purpose. The course emphasizes inductive methods, and reinforces students' understanding by 'returning again and again to the same matters in a widening spiral'.

(a) *The Grammar Strand* sets out to explain the rules of grammar which a native speaker naturally uses in order to understand better the processes of human language production. These rules are classified into *phrase structure* rules and *transformation* rules. The main topics of study included deep and surface structure, embedding, sentence parts, compound sentences, questions, negatives, passives, participial modifiers, restrictive and non-restrictive modifiers, and the like. Students studied and analysed many sentences in order to discover and apply grammatical rules, and a mastery test given towards the end of the course showed that 94 per cent. of the TG pupils were largely correct in their grammatical analysis of a set of typical sentences.

In the three years of the projects, the pupils studied Books II, III and IV of the Oregon Curriculum, after a brief introduction to Book I. The corresponding books were used for the other strands.

(b) *The Rhetoric Strand.* The main objective of this strand is to develop effective communication in writing and speaking, through a study of the underlying concepts of *substance, structure* and *style.*

Pupils practised writing for different audiences and purposes, for entertainment, information, and persuasion. They analysed the structure and strategies used by writers, and studied the ways in which paragraphs are put together, statements qualified, conclusions drawn, etc. The teaching of usage, spelling and punctuation was included only when a specific need arose, and was taught from the standpoint of enhancing communication with one's audience.

(c) *The Literature Strand.* The aims of this strand, like those of the grammar strand, are primarily educative and humane; literature is studied for its own sake, rather than for any utilitarian pupose. The sections studied are intended to be enjoyed, and to help students discover such key concepts as *subject, form* and *point of view.* These are developed and reconsidered at successively more advanced levels in subsequent years. Each literature book contains the year's work, consisting of 20 to 30 poems, six of seven short stories, several selections in non-fiction and drama, and the year's work is brought together in the study of a novel at the end.

2. *The Reading-Writing (RW) Course* included the *rhetoric* and *literature* strands of the Oregon Curriculum (as described above), but substituted extra reading and creative writing for the transformational grammar strand.

Approximately 40 per cent. of the time was spent on free reading of books, journals or magazines. Comics and pictorial magazines were not allowed. Another 40 per cent. was spent on reading class sets, but with a minimum of formal written assignments on them. The remaining time was devoted to creative writing, including exercises on word choice and imagery. This gave way to structured writing based on intensive reading in the final year. The RW pupils studied no traditional or transformational grammar concepts or rules for three years. When the need arose they did study some spelling, punctuation, paragraphing, and other usage conventions, but learnt nothing of sentence analysis, parts of speech, phrase structure rules, transformations, and the like.

3. In the *'Let's Learn English' (LLE) Course*, most of the pupils' study was derived from one of three widely-used resource books by P. R. Smart, *Let's Learn English 3 in the 70's* in Form 3, *Let's Learn English 4* in Form 4 and *Let's Learn English 5* in Form 5. The grammar taught in these books is largely traditional, and more functional than that of the Oregon Curriculum. It includes subjects, predicates, objects, complements, parts of speech, inflexions, phrases, clauses, compound sentences, etc., with many topical applications.

Exercises were chosen from these texts wherever they were deemed suitable by the teachers, and class sets of prose readers and poetry anthologies were used on occasions to supplement them. The teachers consulted regularly to maintain similar emphases in their teaching.

The literature teaching was based on six to eight popular class sets of fiction, poetry and drama at each class level, including such works as *The Red Pony, Verse for You, The Silver Sword, The Boy who was Afraid, The Importance of Being Earnest,* etc. Study centred around the traditional concepts of *character, plot* and *theme*.

Timetabling and Teaching Procedures

All groups had approximately 574 periods of English in the three years, so distributed that each class had similar proportions of morning and afternoon periods, and of time spent on literature, on composition work and evaluation exercises.

No numerical ratings were made of pupils' written essays, but a uniform scheme of marking was devised to allow teachers to identify some good point, to comment generally on achievement of the objective of the exercise, and to make some specific comment on how the essay could be improved. Teaching and homework exercises were standardized through regular consultation, as the three teachers had six periods each week set aside for such planning.

Table 1 outlines the organization of pupils, teachers and courses throughout the three years of the experiment. To illustrate, Class M_1 was taught the TG course by Teacher A in Form 3, by Teacher B in Form 4 and by Teacher C in Form 5. At the beginning of the project in February 1970, the class contained 31 pupils. This number had dropped to 29 by November 1970 and to 20 by November 1972. Although the total numbers dropped from 248 to 166 during the study, the mean scores of the three groups on

the relevant matching variables remained almost identical to one another in each year.

Table 1

Organization of Classes, Courses, and Teachers, 1970–1972

Classes	Courses	Teachers			N in Feb 1970	N in Nov 1970	N in Nov 1971	N in Nov 1972
		F3	F4	F5				
M_1	TG	A	B	C	31	29	22	20
M_2	TG	C	A	B	31	31	25	20
M_5	TG	B	C	A	31	31	24	22
M_3	RW	C	A	B	31	31	26	22
M_4	RW	A	B	C	31	28	22	18
M_7	RW	B	C	A	31	28	27	22
M_6	LLE	C	A	D	31	31	24	20
M_8	LLE	A	C	E	31	30	25	22

Teachers

All three of the participating teachers were fully-qualified, experienced English teachers. Each volunteered to participate in the project for the three-year period because of a genuine interest in the outcomes, and no detectable bias was apparent in their approach to their teaching of any of the courses. Due to timetabling constraints, two additional teachers were required to take the LLE classes in the final year. Again, both were fully-qualified experienced teachers who had an open mind about the results.

Tests and Assessment Techniques

a Essays

At the end of each year of the investigation, all students wrote a series of set essays on a variety of topics. These essays were assessed by carefully-briefed panels of English teachers from neighbouring high schools. Thus, in the first year, each pupil wrote four essays, each of which was assessed by four markers, working independently, using a 16-point scale. Four criteria were used—content, organization, style, and mechanics—and each marker read all essays four times to make his assessments.

In the later years, the number of markers and essays was reduced as the results of the first year evaluations indicated that there would be little loss in reliability if three essays and two markers (or vice-versa) were used instead of four essays and four markers for each pupil. Subsequently, a sample of essays was submitted to objective analyses of their syntactic structures and their vocabulary levels.

b Tests of Language Skills

A variety of language tests was used to supplement the essays, in an attempt to identify other intended and unintended effects of the different English programmes. At the end of each year, all students took the *PAT Reading Comprehension* and *Vocabulary Tests*, (NZCER, 1969) supplemented in the last year by additional items to increase the difficulty levels. Each year a

test of *Sentence Combining* was used, in which pupils were required to join short sentences in various ways, preserving the original meaning, and avoiding the use of 'and'. In addition a test of *English Usage* was prepared and used each year, requiring students to correct 'errors' in specially-prepared short sentences and continuous prose. Objective tests of *Literature* were also given each year, designed to assess students' understanding and appreciation of unseen selections of fiction and poetry.

In the third-form year, tests were also given in *Spelling* and *Listening Skills* (NZCER, 1971); in the fifth form, a locally-prepared test of *Study Skills* was administered to all pupils, and a test of *Transformational Grammar* given to the TG group to assess their mastery of the skills and concepts taught in that course. Finally, a follow-up test of *precis-writing* was given to the students who still remained at the school at the end of the sixth form, in November 1973.

c Attitudes to English

Anonymous questionnaires designed to assess the students' attitudes to different parts of their English programmes were devised by the authors and used at the end of each year. Typically, students were asked to rank English, (reading, writing, grammar, literature) in relation to other subjects, to express their likes and dislikes, on a five-point scale, of their textbooks, of writing for various purposes, of different kinds of reading, class discussions, sentence study, word study, play reading, etc. In the final year, a semantic differential scale was devised to explore more thoroughly, the students' attitudes to essay writing, literature, reading, sentence-study, and their English textbooks.

Analysis of Results

The results of the main comparisons are presented below, separately for each class level.

a Third-Form Results

Table 2 sets out the means and standard deviations on all tests and essays for the pupils in each of the three programmes at the end of Form 3. The four essay scores were combined to produce one total (out of 256), but the sub-totals are also shown for the four different marking criteria. All scores were submitted to an analysis of variance with the result that on none of the twelve variables did any English programme show a significant superiority. An analysis of variance was also undertaken to see whether any of the three teachers produced better results than the other two, across all programmes, again with non-significant results.

One significant difference was found in the pupils' attitudes at this level. The TG pupils liked writing less than the other groups, relative to other school subjects, but there were no other clear differences in their ranking of leisure-time interests or of preferred reading materials or of English studies.

Table 2

Means and Standard Deviations on Twelve Variables for Pupils in Three English Programmes—End of Form 3

		TG N = 91	RW N = 88	LLE N = 61
Essay Total	M	160.37	161.08	157.57
	SD	31.43	26.18	31.84
Reading Vocab.	M	46.62	47.19	47.12
	SD	10.08	9.05	8.76
Reading Comp.	M	26.52	27.59	27.65
	SD	6.08	6.06	6.77
Sent. Combining	M	31.16	29.78	30.50
	SD	5.67	6.57	6.22
English Usage	M	25.16	24.52	24.26
	SD	5.50	5.82	5.57
Spelling	M	20.47	19.80	20.83
	SD	10.20	10.35	9.64
Listen. Comp.	M	27.60	28.25	27.87
	SD	6.01	5.39	5.10
English Literature	M	26.52	27.74	26.56
	SD	6.08	5.08	5.70
Essay Mechanics	M	42.40	41.44	41.54
	SD	9.87	8.93	9.90
Essay Style	M	39.20	39.44	37.72
	SD	8.86	7.14	8.94
Essay Structure	M	40.29	41.43	40.00
	SD	7.72	6.47	7.69
Essay Content	M	38.25	38.74	38.44
	SD	7.63	6.78	8.19

b Fourth-Form Results

Table 3 shows similar results to those of Table 2. Only one of the 30 possible language test comparisons at fourth-form level proved significant, that between the RW and LLE group on the Essay-Content criterion ($F = 4.74$, $p < .01$). As this was neither hypothesized, nor amenable to ready explanation, it is more likely to be a chance fluctuation. Three significant differences were found in a two-way analysis comparing teachers with programmes. One teacher produced significantly better results ($p < .05$) than the other two on two essay criteria and the sentence-combining tests, but no significant interactions were found.

The attitude results showed no differences in general attitudes toward school or English in general. However, the two Oregon groups (TG & LLE) showed a significantly more positive attitude towards literature, and towards explanatory and persuasive writing, findings which the teachers interpreted in terms of the very effective treatment of these topics in the Oregon Curriculum. In addition, the TG groups found English more difficult than the other groups, and stated that they read less than they used to. All these differences were significant only at the 0.05 level, and could not be regarded as dramatic.

Table 3

Means and Standard Deviations for Three English Programmes on 10 Variables—End of Form 4

		TG N = 71	RW N = 75	LLE N = 49
Essay Total	M	61.21	59.79	63.69
	SD	13.05	11.96	14.66
Reading Vocab.	M	42.92	44.35	43.94
	SD	9.65	8.53	8.58
Reading Comp.	M	30.15	31.32	30.82
	SD	7.88	6.20	6.41
Sent. Combining	M	16.04	14.48	14.52
	SD	7.32	6.20	6.74
English Usage	M	10.59	10.88	11.20
	SD	3.44	3.17	2.78
English Literature	M	21.55	21.25	21.80
	SD	4.59	4.17	3.85
Essay Mechanics	M	16.40	16.27	16.51
	SD	3.03	3.06	4.71
Essay Style	M	15.86	14.53	15.43
	SD	3.71	3.49	4.20
Essay Structure	M	15.52	15.47	15.61
	SD	3.86	3.58	3.83
Essay Content	M	14.90	14.38*	16.06*
	SD	4.00	3.09	3.35

* Denotes significant difference. (See text)

c Fifth-Form Results

(i) Test Scores

Table 4 presents the results for 164 pupils who remained in the investigation at the end of the third year. As most of the pupils took the School Certificate English examination, these results are also included. Of the 12 variables listed, only two showed significant F ratios in the Analysis of Variance, the Sentence Combining Test ($F = 3.23$ $p < .05$) and the English Usage Test ($F = 3.99$, $p < .02$). Follow-up Newman-Keuls tests on these two variables showed that both the TG and the RW groups scored significantly better than the LLE group in Sentence Combining exercises, the former at the 0.01 level, the latter at the 0.05 level. On the English Usage Test the TG and LLE groups both produced means significantly higher, at the 0.05 level, than the RW group. In no other cases, not even the three-hour School Certificate Examination, did any group show any advantage over the others.

As the two differences that were found were marginal, a closer analysis was made of these results in order to pinpoint their exact nature. Two-way analyses of variance were conducted on both variables, contrasting programmes with sex, and then with level of ability. The analyses by sex revealed that girls produced significantly and uniformly superior results on both Sentence Combining and Usage tests on all three programmes. There were no significant interactions in either case, ($p = 0.80$ and 0.33). The groups were then subdivided into two levels according to general ability.

Table 4

Means and Standard Deviations for Pupils in Three English Programmes on 11 Variables—End of Form 5

		TG N = 60	RW N = 62	LLE N = 42
Essay Total	M	79.69	78.40	78.83
	SD	17.58	15.21	16.35
Reading Vocab.	M	50.43	50.51	49.89
	SD	7.43	7.56	7.08
Reading Comp.	M	24.85	23.35	22.94
	SD	5.79	5.32	5.25
Sent. Combining	M	13.42*	12.81*	11.00*
	SD	5.36	4.36	5.42
English Usage	M	20.47*	17.65*	20.24*
	SD	6.32	5.83	6.93
English Literature	M	23.15	22.71	22.40
	SD	4.87	4.50	4.79
Study Skills	M	30.48	28.76	28.14
	SD	6.30	6.17	6.09
S.C. English Exam.	M	47.80	47.92	46.80
	SD	14.71	11.10	12.31
Essay Mechanics	M	21.49	20.45	20.93
	SD	6.21	5.48	6.02
Essay Style	M	19.59	19.64	19.45
	SD	5.87	5.21	5.74
Essay Structure	M	19.60	19.45	19.50
	SD	5.03	5.97	6.01
Essay Content	M	19.21	18.90	18.98
	SD	6.14	5.09	5.42

* Denotes significant difference. (See text)

as measured by Arvidson's *General Ability Test*. Once again there were no significant interactions on the two tests in question ($p = 0.17$ and 0.08). The TG high-ability group performed slightly better than the other high-ability groups on several tests, but in no case were the differences statistically significant. Thus there was no evidence in these data that girls, or brighter pupils, benefit more from a study of grammar than other pupils. An item analysis was then carried out to determine whether the significant differences found were general, or were specific to one or two kinds of questions, or were related to speed of work. On the Sentence Combining Test, the LLE group had the lowest percentage correct on 25 of the 26 items and in 15 of these items the margin was at least 10 per cent. These items were spread throughout the test. Clearly the differences were in no way specific to one or two items. The two Oregon groups thus showed a slight superiority (9.3 per cent. and 6.9 per cent.) over the LLE pupils in the general skills of joining, manipulating and restructuring sentences.

In the English Usage Test the TG pupils performed better than the RW group on 28 of the 38 items and the discrepancy was at least 10 per cent on 16 of these. In no case did the RW group exceed the TG pupils by 10 per cent. An analysis of the items revealing the largest differences in favour

of the TG group showed that they were spread over a variety of minor mechanical problems. Two were concerned with the use of capitals, three with commas in parenthetical statements, two with commas in lists, three with spelling (quiet = quite, of = off, alot), one for the use of apostrophe, one comma in an appositional statement, and two run-on sentences. Yet seven of the questions had tested the pupils on run-on sentences, where the TG group might be expected to have performed better. If the transformational grammar had developed any superiority in matters of conventional usage—and it was only a slight advantage of 2.8 points in a 38 item test—(7.3 per cent.) their superiority was confined to rather trivial mechanical faults, and not to sensitivity to sentence structure.

The LLE mean score was 2.5 points (6.6 per cent.) higher than the RW mean, and an analysis of the differences in items showed a similar trend to that found in the case of the TG pupils. The LLE group performed better by 12 per cent. or more on capital letters (two items), punctuation (four), spelling (one), contraction (one), and run-on sentences (two). A further check was made of the performance of all three groups on the seven items testing run-on sentences. On average, the TG and LLE pupils scored higher than the RW group by 11.4 per cent. and 8.6 per cent. respectively. In neither case was this figure significantly higher that the percentage over all items (7.3 per cent. and 6.6 per cent.). What slight superiority there was in the two grammar groups was dispersed over a wide range of mechanical conventions, and was not clearly associated with sentence structure.

A two-way analysis of variance contrasting teachers with programmes showed a teacher difference on the Usage test only ($F = 7.31$ $p < .001$); no interactions were significant.

(ii) Attitudes

The attitude scales showed no significant differences between groups in ranking of English, relative to other subjects, but an analysis of the students' general responses to an open-ended question showed that the TG pupils found English more 'repetitive' and 'useless' than the other groups; the LLE groups saw it as less 'interesting' and less 'useful'.

In the Semantic Differential analysis, the pupils rated five topics in English, using 14 bi-polar adjective scales, following the methods outlined by Osgood *et al.* (1957). Briefly, the two Oregon groups viewed *writing* and *literature* more positively than the LLE pupils, as reflected in their ratings on such dimensions as 'easy-difficult', 'useful-useless', 'relaxed-tense', 'straightforward-complicated', 'pleasant-unpleasant', 'keeps moving-static'. The RW group showed more positive attitudes towards reading on the 'easy' 'relaxed' and 'straightforward' scales.

The major differences were found in the pupils' feelings about *sentence-study* and their language textbooks. Here the TG groups showed predominantly negative attitudes, especially on such dimensions as 'useless', 'unimaginative', 'repetitive', 'passive', 'complicated', and 'unpleasant'. Clearly, the TG strand of the Oregon Curriculum was not popular. Other attitudinal differences were minor, and of less educational importance.

(d) *Sixth-Form Follow-up*

At the end of their sixth-form year, only 57 of the original pupils were still available for assessment. All had been taking a common sixth-form English programme, with a major emphasis on literature, composition and socio-linguistics, and minimal work on formal language. A precis exercise was chosen to throw more light on the possible differences shown between groups in control over sentence structure. After careful marking by panels of briefed English teachers on three criteria—mechanics, style and content—it was found that the three groups showed no differences in mean scores. As in the earlier years, the evidence indicated that the different programmes had produced no important divergent effects on the pupils.

Additional Findings on Writing Quality

As the conditions of the investigation were regarded as unique, and the data difficult to collect again, a more thorough examination of the students' essays was undertaken, in case the effects of the different English grammar courses were too subtle to be identified by conventional techniques.

a Analysis of T Units

Representative samples of 58 of the essays in each Fifth Form group were submitted to an objective analysis of their syntactic structures. The first 10 T-units* in each essay were identified, and the number of words in these 10 T-units counted. As Table 5 shows, there was no difference between the groups in the average length of their T-units.

Table 5

Mean Number of Words per T-unit Written by Students in Three English Programmes

	TG			RW			LLE		
Essay Type	N	M	SD	N	M	SD	N	M	SD
Narrative	21	12.7	2.6	19	13.8	4.2	28	12.9	3.6
Remainder	37	12.9	3.5	39	13.3	4.0	30	14.6	4.3
Total	58	12.8	3.2	58	13.6	4.1	58	14.0	4.1

b Number of Transformations

Earlier research suggested that pupils taking transformational-generative grammar courses showed a greater propensity to use certain kinds of transformations in their writing. Therefore, the 174 essays analysed above were subjected to an intensive analysis of those transformations taught in the TG course, viz: prepositional phrases, subordinate clauses, adjectives, participles, gerunds, possessives, absolutes, passives, appositives, comparatives, adverbs, and deletions. Firstly, all 12 transformations were combined, and counted in relation to (i) the number of T-units and (ii) the number of words used.

* A T-unit is defined by Hunt (1965) as 'one main clause plus all the subordinate clauses attached to or embedded within it'. Hunt found length of T-unit a more sensitive index of syntactic maturity than length of sentence.

Neither analysis showed any significant differences. Then the mean number of each transformation per 10 T-units was calculated. Only one difference proved significant out of a possible 36 comparisons. The TG group used fewer participles than the other two groups. There is no support in these results for the hypothesis that a special study of any kind of transformation increases the propensity to use them.

c Breadth of Vocabulary

An analysis was then made of the number of rare words used in a representative sample of 170 fifth-form essays, randomly drawn from the three groups. For the first 100 words in each essay, a count was made of the number of words not included in the NZCER Alphabetical Spelling List. (Arvidson 1961). This list contains the most common 2,700 used by New Zealand children in their writing. Much variation was found between individual pupils in the number of 'rare' words used, but once again, no significant differences appeared between the three groups.

Discussion and Conclusions

The main purpose of this investigation was to determine the direct effects of a study of transformational grammar on the language growth of secondary school pupils. The results presented show that the effects of such grammar study are negligible. Similarly, those pupils who studied a course containing elements of traditional grammar showed no measurable benefits. The RW group, who studied no formal grammar for three years, demonstrated competence in writing and related language skills fully equal to that shown by the two grammar groups. After two years, no differences were detected in writing performance or language competence; after three years, small differences appeared in some minor conventions of usage favouring the TG group, but these were more than offset by the less positive attitudes which they showed towards their English studies. No differences were found in the School Certificate English results of the three groups, nor in a follow-up exercise twelve months later. It is difficult to escape the conclusion that English grammar, whether traditional or transformational, has virtually no influence on the language growth of typical secondary school students.

Several caveats need to be considered at this point, however. The study of transformational grammar in the Oregon Curriculum was justified on humanistic rather than pragmatic grounds. The fact that it did not influence children's writing does not change this justification. Indeed, it could be argued that an effective grammar course deliberately designed to affect children's writing would devote more time to practice and drilling in the transformations it treats. As the TG students were already disenchanted with the degree of repetitiousness in their grammar study, however, this case would be difficult to support.

Nevertheless, the TG students did master the fundamentals of transformational grammar, without any apparent sacrifice in other aspects of their language development, relative to the other students. Therefore this study could be said to provide little discomfort for those who support the study of grammar for its own sake, or as a means of gaining a greater understanding of their language.

The nature and course of the language growth of these students was such that it was not seriously disadvantaged by a systematic study of grammar during the secondary school years. Moreover, it was the teachers' view that pupils could readily gain an understanding of basic concepts in transformational grammar in less than half the time; the concepts would be illustrated in fewer sentence types, but there would probably be an improvement in attitudes.

It is conceivable that a systematic study of grammar taught at a different level of the school might produce more obvious effects. As the writing style of the typical thirteen-year-old is probably less amenable to change than that of younger children, one might hypothesize that an earlier start in the primary school would be more profitable. Unfortunately, the essentially abstract nature of grammar makes such an hypothesis less credible. Certainly, teachers have succeeded in instructing primary school children in the exercise of sentence analysis, but, in the light of the research of Piaget and other developmental psychologists about the limited ability of pre-adolescent children to manipulate abstract concepts, it seems most unlikely that such training would be readily applied by children in their own writing. Furthermore the researchers' empirical findings do not support an early introduction of grammar.

Perhaps then, the benefits to be derived from grammar are confined to bright children, those who can readily manipulate and apply those syntactic structures which they have studied. The subsidiary analyses conducted in the present analysis certainly did not show any important differences in the patterns of the above and below-average pupils. It must be remembered, however, that the top-stream children (8-10 per cent.) had been deliberately omitted from the study. Curriculum planners should note, then, that the conclusions of the present investigation should be properly if cautiously, restricted to typical secondary school pupils, and not to the brightest 10 per cent. Nor can we generalize to older students, or, indeed, to learners of English as a second language.

What, traditionally, are the expected practical benefits of an effective course in English grammar? Defenders of the grammatical faith have emphasized the importance of sensitizing students to the variety of alternative ways of expressing an idea, to suit different occasions. The assumption is made that, by analysing the movable parts and choice points in a sentence, and by rendering implicit habits explicit, pupils will consciously come to use a greater range of the structures they study, and to avoid inappropriate structures. However, it is highly debatable whether many students, or professional writers for that matter, are aware of the choices they make when generating new sentences. Habits of word production and sentence generation are set up very early in our language histories. Indeed the structures exist in most children's repertoire during their primary school days and seem to be relatively impervious to influence from analytic and somewhat unexciting written exercises. It may be true that new constructions can be taught to English pupils, but there is neither empirical nor theoretical justification for the teaching of current grammars for this purpose.

Some would argue that an understanding of grammar is needed before one can successfully undertake the editing of written prose. Amongst other

things, the good editor is expected to identify inappropriate sentence structures, and to reconstruct them without changing the meaning of the sentence. If, indeed, a study of grammar produces such a linguistic ability (which may not be reflected in writing performance) we would have expected it to show up in the tests of sentence combining where the students had to modify sentences in just such a way. But the non-grammar groups achieved just as well as, or better than, the other groups on this exercise. And even if a knowledge of grammar did some day prove to be a pre-requisite for editorial tasks, it would need more justification than this to be seen as essential study for the general run of the high school population.

Meanwhile, given that grammar has a negligible influence on children's language growth, it still requires a deliberate value judgment to decide whether to include or exclude it from the English programme. Lovers of English language may well continue to justify its instruction on humanistic grounds. Thus Paul Roberts (1960) claims that language should be studied 'objectively and dispassionately, for its own sake' while Peter Rosenbaum points out that the student of linguistics 'is involving himself in a study which has had intrinsic intellectual appeal for centuries, the study of those abilities which make human beings human'. (Rosenbaum, 1965)

The more pragmatic English teacher will doubtless reject this argument, and point to the increasing congestion of the secondary school curriculum and the negative attitudes that grammar study frequently engenders. There are today so many calls on the students' time that there is need for more convincing reasons to justify the presence of grammar in a crowded curriculum. The implication of the 'grammar for its own sake' argument is that no better rationale exists. It is surely time for those who support grammar to spell out more forcibly its 'humane' benefits, and to identify the contexts in which it might best be taught—When? To whom? To what end?

At this point, it is appropriate to explore further the question of whether the study of grammar is an expensive luxury. The present study showed neither advantage nor disadvantage in language growth relative to the other groups. But there is a disquieting suspicion in the results, that none of the groups made substantial gains in writing skill, with or without grammar.

Many of the students who participated in this investigation showed considerable skill in writing at the outset. It was noticeable, however, that those students whose writing was highly rated in the third form, were still the best writers in the fifth form. When a comparative analysis was made of third- and fifth-form essays, written on the same topics, and marked 'blind' by experienced English teachers, the correlation between the marks on both occasions was 0.5, a relatively high figure considering the unreliability of essay marking. The good writers stayed good; the poor did not improve. More important, they all showed only a modest growth in written composition skills over the two year period. The actual mean gain was only 2.92 (out of 36 points), or 60 per cent. of one standard deviation. Considerably more growth was found in the pupils' vocabulary, and in their knowledge of grammatical concepts, but there was little evidence that they either improved or changed their writing style in the last two years of the experiment. The increase was statistically significant, but by no means reassuring. So whatever the components of an effective writing programme in the secondary

school may be, it seems unlikely that the three courses studied in this project have produced a formula for dramatic improvement. The fifth formers were writing with little more control or fluency and with the same kinds of sentence stuctures as they used in the third form. In the light of this finding, it is not sufficient to claim that the grammar students did not sacrifice any language growth, *relative to the others*. It seems that grammar has no practical benefits *in an absolute sense*. And we cannot ignore the negative feelings the grammar students showed at the end of the experiment.

The present study was evaluative rather than exploratory in its intentions. Therefore, no clear recommendations can be made about the kind of programme which might have a striking impact on the composition skills of secondary school pupils. Such a research exercise would seem to require either a more intensive, longitudinal study of the writing development of individual children, or a programme developed from a completely new set of theoretical proposals about the nature of children's language growth. The time is clearly ripe for more experiments with other approaches to the teaching of English, such as the kind of naturalistic language curricula being advocated by the National English Syllabus Committee in New Zealand and similar groups overseas.

The major findings of this investigation may appear to be predominantly negative, albeit important. In the course of the study, however, many more results of considerable interest did emerge. Various strategies for essay marking were evaluated, with important implications for examination marking; several approaches to attitude measurement were compared; the value of objective analyses of writing quality was examined; and the two English curricula were assessed empirically. Furthermore, much useful experience was gained in evaluating textbooks, in test development, and in questionnaire construction. Much of this experience is recorded in a more detailed report on the project, now being prepared.

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